

**North Dakota
Department of Health
Division of Water Quality**

To: File

From: Division of Water Quality

RE: Comments Received and Department Response on the Proposed Amendments to the Standards of Quality for Waters of the State N.D. Administrative Code Chapter 33-16-02.1 and the Adoption of these as N.D. Administrative Code Chapter 33.1-16-02.1 by the Environmental Quality Section Chief on behalf of the North Dakota Department of Environmental Quality.

Comments are listed and responded to in the order they were received.

All comments regarding North Dakota Administrative Code Chapter 33-16-02.1 and the transfer of these rules as Chapter 33.1-16-02.1 from the North Dakota Department of Health (NDDoH) to the North Dakota Department of Environmental Quality (NDDEQ) will be considered.

Comments may be summarized and supporting data not shown. The full comments and supporting data are included in the final package.

Date: April 17, 2018

I. Concerned Citizens of North Dakota, Beaton C., Coon D., Coon R., Fraase L., Frueh A., Frueh T., Hager C., Marcks G., Rakow L., Stout L., VonBank, J., VonBank, Wolff L.

- a. **Comment A1:** The first set of documents are redundant and make it difficult discerning what changes are actually being incorporated into the 2018 edition.

Department Response: The department apologizes for any redundancy, but the rules are presented as they will be published.

- b. **Comment A2:** The changes generally fall into three categories: procedural, editorial and technical.

Department Response: Comment is noted.

- c. **Comment A3:** Many pages of changes are described in the preface to the "Standards" documents. In reality, Section 33.1-16-02.1-02 (2.a-) overrides all standards the new document puts in place. It states that, "*.....after full satisfaction of intergovernmental consideration and public participation provisions of the*

continuing planning process, that a change in quality is necessary to accommodate important social or economic development in the area in which the waters are located”.

Department Response: North Dakota Administrative Code (N.D. Admin. Code) Sections 33-16-02.1-02 (2)(a) and Sections 33.1-16-02.1-02 (2)(a) are not designed to circumvent the Standards of Quality for Waters of the State (standards), which by state and federal law are designed to protect uses (i.e., municipal domestic, drinking, aquatic life, recreation, agriculture, and industrial). Instead, it provides a mechanism whereby a change in water quality may be allowed due to an important social or economic development in the area, but not to the extent that it impairs an existing beneficial use. Providing such a mechanism is permissible under the Federal Water Quality Standard regulations 40 CFR Sections 131.10(g) and 131.12.

The entire piece of the subsection states:

The "quality of the waters" shall be the quality of record existing at the time the first standards were established in 1967, or later records if these indicate an improved quality. Waters with existing quality that is higher than established standards will be maintained at the higher quality unless affirmatively demonstrated, after full satisfaction of the intergovernmental coordination and public participation provisions of the continuing planning process, that a change in quality is necessary to accommodate important social or economic development in the area in which the waters are located. In allowing the lowering of existing quality, the department shall assure that existing uses are fully protected and that the highest statutory and regulatory requirements for all point sources and cost-effective and reasonable best management practices for nonpoint sources are achieved.

The key words “the department shall assure that existing uses are fully protected” prevent the department from approving an action that would impair an existing use. Moreover, before allowing a change in quality, the department must comply public participation requirements.

- d. **Comment A4:** The water quality "Standards" should apply to everyone in the state. Changing the "Standards" to accommodate a politician, developer, out-of-state corporation, friends, relatives, political donors, etc., is not acceptable and any reference to this type of activity must be removed from the document. This clause gives the NDDEQ the ability to circumvent the very standards they are trying to approve. Everyone in North Dakota should be subject to the same set of rules and laws, and everyone should be expected to follow the rules and laws, with **NO EXCEPTIONS**. By including this provision in the "Standards" document further enhances the NDDEQ's reputation as a "rogue agency" that does not have to follow the laws of the state and completely destroys the credibility of the NDDEQ This exception directly contradicts the first sentence in item (2.) of this same section, *"The state and public policy is to maintain or improve, or both, the quality of the waters of the state to maintain and protect existing areas."* Provision (2.a.) of Section 33.1-16-

02-05 **MUST** be eliminated to preserve any sense of trust the people of North Dakota have in the NDDEQ.

Department Response: The rules in N.D. Admin. Code, Chapters 33-16-02.1 and 33.1-16-02.1, Standards of Quality for Waters of the State (standards) apply equally to all citizens, communities, and industries regardless of personal or political affiliation. Before approving any change in water quality, as contemplated in N.D. Admin. Code Sections 33-16-02.1-02(2)(a) and 33.1-16-02.1-02(2)(a) the department must comply with the requirements of that subsection and allow for public participation. In addition, any change in the standards is subject to EPA review and approval. 40 CFR Section 131.5.

- e. **Comment A5:** In that same section, item (2.c.) indicates that, "*if a review of data and public input indicates any detrimental water quality change appropriate action will be taken ...*". This vague language is unacceptable. Who decides what the "appropriate action" is? Subjective and definite consequences need to be spelled out, otherwise fair and consistent consequences will never exist.

Department Response: N.D. Admin. Code, Sections 33-16-02.1-02(2)(c) and 33.1-16-02.1-02(2)(c), reference the requirements under the CWA, Section 402, known as the National Pollutant Discharge Elimination System (NPDES permit). The state has primacy for the implementation of the NPDES permitting program but must comply with CWA Section 402 and federal rules implementing that section. The department must also comply with the rules it has adopted to implement the NPDES permitting program.

- f. **Comment A6:** Section 33.1-16-02.1-08 item (1. f.) uses the term "may" which is another term that needs to be removed and replaced with more definitive language. "May" indicates an unwillingness to make a decision, even when it is required. Who gets to be the "may" decision maker and how can this be fair and consistent to everyone?

Department Response: N.D. Admin. Code, Sections 33-16-02.1(1)(f), and 33.1-16-02.1-08(1)(f) do not infer an unwillingness to make a decision, but instead provide the opportunity to use the best methods available. One option, not a requirement, is the development of a site-specific criteria. The entire section reads:

If the department determines that site-specific criteria are necessary and appropriate for the protection of designated uses, procedures described in the environmental protection agency's Water Quality Standards Handbook 1994 or other defensible methods may be utilized to determine maximum limits. Where natural chemical, physical, and biological characteristics result in exceedances of the limits set forth in this section, the department may derive site-specific criteria based on the natural background level or condition. All available information shall be examined, and all possible sources of a contaminant will be identified in determining the naturally occurring concentration. All site-specific criteria shall be

noticed for public comment and subjected to other applicable public participation requirements prior to being adopted.

- g. **Comment A7:** Also, in section 33.1-16-02.1-08 item I-a. (6) uses the term "**public health or welfare**". This is a vague reference with no documentation, definitions, or guidelines for decision makers. In a highly technical document using vague terminology and undefined phrases is unacceptable and unprofessional.

Department Response: After reviewing the proposed language in N.D. Admin. Code, Sections 33-16-2.1-08(1)(a)(6), the department continues to believe that the proposed narrative standard, as written, achieves protection of the state's aquatic beneficial uses and the public health and welfare.

To explain, the department is aware that excess nutrients are one of the nation's leading causes of water quality degradation. In North Dakota, many lakes and streams are not fully supporting all their beneficial uses, such as fishing and recreation, due to hypereutrophication. The primary response is increased phytoplankton growth in waters that can pose threats to humans and animals that swim or drink from them. EPA considers threats to human health and welfare from nutrient-induced harmful algal blooms a national priority.

In 2007, in response to state and federal interest, the North Dakota Department of Health Division of Water Quality began developing a Nutrient Reduction Strategy and prepared the State of North Dakota Nutrient Criteria and Development Plan. Between 2012 and 2013, a planning and strategy group comprised of more than 100 stakeholders was assembled with representation from nearly every sector of the state (private citizens, agriculture, industry, wildlife, water, rural and urban citizens, and universities).

This large group was split into five smaller workgroups, including a nutrient criteria development workgroup. One of the steps identified by the nutrient criteria workgroup and supported by the whole was the need to develop and adopt narrative nutrient criteria. The language in N.D. Admin. Code Sections 33-16-02.1-08(1)(a)(6) and 33.1-16-02.1-08(1)(a)(6) is the narrative based on the groups recommendation.

- h. **Comment A8:** Section 33.1-16-02.4-04 items 11 and 12 define **nutrients** and **eutrophication**. Both of these definitions avoid some of the real consequences of nitrogen and phosphorus entering bodies of water. Stating that "*eutrophication means the process of enrichment of rivers, streams, lakes, reservoirs, and wetlands with nutrients needed to maintain primary production*" is avoiding the problems these nutrients cause in bodies of water. Eutrophication is the primary cause of "algae blooms" or "dead zones" in bodies of water, especially the Gulf of Mexico. Nitrogen and phosphorus are the primary causes of water pollution in the Midwest. Many states are trying to install buffer strips near rivers, streams, and lakes to prevent contamination of fertilizer nutrients, but your definitions lead to the conclusion that

these elements are important to the bodies of water. These definitions must be removed from the document because they are misleading.

Department Response: Nutrients: In reviewing, the definition for nutrients in N.D. Admin. Code Sections 33-16-02.1-4(12) and 33.1-16-02.1-4(12) is accurate and supportive of the narrative nutrient criteria. The definition mirrors well-established definitions of nutrients, with a slight modification to customizing it for aquatic ecosystems. For example, the Merriam Webster Dictionary defines “nutrient” as “furnishing nourishment”.

Eutrophication: In reviewing the definition for eutrophication in N.D. Admin. Code, Sections 33.1-16-02-4(12) the definition is accurate and achieves the goal of supporting the proposed nutrient narrative criteria: (6) Free from nutrients attributed to municipal, industrial, or other discharges or agricultural practices, in concentrations or loadings which will cause accelerated eutrophication resulting in the objectionable growth of aquatic vegetation or algae or other impairments to the extent that it threatens public health or welfare or impairs present or future beneficial uses. The definition is similar to Merriam Webster Dictionary that defines “eutrophication” as the process by which a body of water becomes enriched in dissolved nutrients (such as phosphorus) that stimulates the growth of aquatic plant life usually resulting in the depletion of dissolved oxygen.

It should be noted that eutrophication is the act of becoming more eutrophic (like aging is the act of getting older). The issues associated with eutrophication described in the comment (i.e., algae blooms, dead zones) are real but are symptoms of eutrophication just as becoming arthritic and hard of hearing are symptoms of aging.

- i. **Comment A9:** Raising the level of micrograms per liter for 1,1,1-Trichloroethane for Human Health Values for Classes I, IA, and II (Table 2) from 200 to 10,000 needs some explanation. Is there scientific justification for this large increase, and where is the science behind this change and why isn't it documented?

A similar question arises for 1, I-Dichloroethylene with the Human Health Value for Classes I, IA, and II increased from 7 to 300 micrograms per liter, and Class III from 7,100 to 20,000. Again, where is the evidence that this increase is safe for humans? Is the science available for these changes made to Human Health Values, and if so, why are these documents not referenced and explained?

Department Response: The state must comply with 40 CFR section 131.4 by reviewing, establishing, and revising water quality standards. The state usually adopts the EPA’s recommended criteria (CWA Section 304(a)) but can under CWA Section 510 develop water quality standards more stringent than required by this regulation.

The EPA updated its national recommended Human Health Criteria (HHC) for 94 chemical pollutants in 2015 to match the latest scientific information and federal policy. The department proposes to change HHC for 1,1,1-Trichloroethane, 1,1-Dichloroethylene to reflect the newest science.

The data to support these changes may be found in the 2015 update. EPA has revised the HHC for 1,1,1-Trichloroethane and 1,1-Dichloroethylene to reflect the latest scientific information, including updated exposure factors (e.g., body weight, drinking water intake rate, and fish consumption rate); bioaccumulation factors; and human health toxicity values (reference dose multiplied by relative source contribution or 10^{-6} divided by cancer slope factor). The criteria continue to be based on EPA's Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health, which is referred to as the "2000 Methodology" in this document (USEPA 2000a). EPA accepted written scientific views from the public on the draft updated HHC for this chemical (and 93 others) from May through August 2014.

- j. **Comment A10:** Changing the acute criteria for Endrin from 0.09 micrograms per liter to 0.86 micrograms per liter is a significant increase, given the fact that Endrin is a highly toxic hydrocarbon. In the latest revisions of the "Standards" document the acute test for levels of Endrin have been eliminated. Why has the science for these changes not been documented?

Department Response: The department appreciates this comment as it catches an error in 33.1-16-02.1, Table 2. The department has made changes to N.D. Admin. Code, Chapter 33.1-16-02.1, Table 2, to reflect the EPA-recommended acute numeric criteria for Endrin of 0.086 micrograms per liter ($\mu\text{g L}^{-1}$).

- k. **Comment A11:** Removing hexachlorocyclohexane-delta (delta BHC) from Table 2 because EPA does not have data should be presented as not available (N/A) in the table.

Department Response: Removing Delta-BHC (hexachlorocyclohexane delta), which lacks an acute, chronic or human health criteria recommendation, reduces the clutter in an already complex table without sacrificing any safety to the environment or human-health. Removing Delta-BHC (hexachlorocyclohexane delta) at this time does not prevent placing it back in the table should new information or recommendations become available.

- l. **Comment A12:** The "Basis for Revisions to the Water Quality Standards" preface to the "Standards" document has a section titled "added a new narrative standard for nutrients". The third paragraph in that section states, "The consequences of the NDNRSG [North Dakota Nutrient Reduction Strategy Group] is that nutrient criteria are needed to protect the state's water resources and their beneficial uses, but there are many challenging reasons why nutrient criteria have not been met", and " the NDNRSG recognized that defensible nutrient criteria would require them to be based on local conditions and supported with sound science".

Department Response: Comment noted.

- m. **Comment A13:** Requiring large concentrated animal feeding operations (CAFO) to supply realistic nutrient management plans based on a methodology developed from sound science is a necessity. The NDDH has approved permits for CAFOs with unrealistic acreages and underestimated quantities of manure. Soil types must also be part of the equation and manure over application must not be allowed. Soil testing is necessary to prevent over application of nitrogen and phosphorus. It is important that rules are enforced and monitoring is critical.

Department Response: Thank you for the comment; however, concerns with concentrated animal feeding operation (CAFO) permitting is beyond the scope of reviewing and updating as appropriate the water quality standards in N.D. Admin. Code, Chapters 33-16-02.1 and 33.1-16-02.1.

- n. **Comment A14:** The Concerned Citizens of Buffalo have researched the aspects of air and water pollution in their area since a hog CAFO applied for a permit in their community. They have investigated all factors that would cause pollution in the waterways in the Buffalo area and have produced a document regarding the pollution that would occur to waterways in the area. It traces the path the pollution would follow to ultimately reach the Red River and then continue into Canada. "Pollution Issues for the Red River of the North" dated March 20, 2017 is included with this testimony.

Department Response: Thank you for the document; however, this is beyond the scope of reviewing and updating as appropriate the water quality standards in N.D. Admin. Code Chapter 33-16-02.1 or 33.1-16-02.1.

- o. **Comment A15:** In summary, the addition of the text allowing the NDDEQ to alter the Water Quality Standards for anyone is unacceptable and must be deleted from the document. Much of the wording added to the new document is vague and arbitrary. This is a State Administrative Code document and the language must be clear and concise. Using terms like "may", "should", "appropriate", "public health or welfare" will only dilute the document resulting in confusion and inconsistency. This is a high-level State Administrative Code that needs to reflect the importance of maintaining the quality of one of the North Dakota's most important resources, our water.

Department Response: The department believes there is a misunderstanding that it has the authority to alter the standards for any individual. The standards are grounded in law, both state and federal. No amendments or modifications can be made without going through an intergovernmental process which includes public participation and ultimately federal approval.

- p. **Comment A16:** NDDEQ had been given too much leniency to make decisions that are based on political expediency, and not science and research. Making decisions not predicated on sound science and research to satisfy political interests can only lead to more distrust of the state's governing agencies.

Department Response: For clarification regarding the maintenance and implementation of the standards, the department follows a process that is both legally and scientifically rigorous. It must follow both state law N.D.C.C. chs. 61-28, and 28-32, and Code of Federal Regulations 40 CFR Part 131. For more detail, see comment A4.

- q. **Comment A17:** Water quality is an issue that affects every person in North Dakota. Do not allow the NDDEQ to destroy the quality of our water, one of North Dakota's most valuable resources.

Department Response: Comment is noted.

II. Nicole Armstrong, Acting Assistant Deputy Minister, Manitoba, Sustainable Development

- a. **Comment B1:** It appears as though North Dakota adopts national water quality criteria from the United States Environmental Protection Agency (EPA), however, this is not always the case. A number of the variables in Table 1 and Table 2 (chloride, nitrate, sulphate, temperature and selenium) do not align with the national US EPA criteria. It appears these values are adopted from other jurisdictions, developed internally by North Dakota, or criteria have been derived after the proposed amendments to the administrative rule was written. In addition, variables such as dissolved oxygen, ammonia, pH and the pollutant, endrin, appear to be a modified version of the national aquatic life criteria. Manitoba is concerned with North Dakota's water quality standards for variables that are less stringent than the national US EPA criteria (e.g., chloride, nitrate, sulphate, temperature, selenium, dissolved oxygen, ammonia, endrin, and pH). Further review of these criteria are provided subsequent sections.

Department Response: The department complies with the Code of Federal Regulations (CFR) 40 Sections 131.2 when adopting water quality criteria. Under federal law the department is required to define the water quality goals of a waterbody or portion thereof, by designating the use or uses to be made of the water and by adopting criteria to protect the designated uses.

The department adopts water quality standards to protect the beneficial uses of public health or welfare, enhance the quality of water and to serve the purposes of the Clean Water Act (CWA) 303(c)(2)(A). Under CWA) 303(c)(2)(A) the standards should provide water quality for; 1) The protection and propagation of fish, shellfish and wildlife, 2) for recreation in and on the water, 3) public water supplies, 4) agricultural, 5) industrial, and 6) other purposes including navigation.

EPA periodically generates a list of pollutants and protective levels or numeric criteria for these pollutants (CWA Section 304(a)). Under CWA Section 3030(c)(B), the state is required to adopt numeric criteria of all priority pollutants pursuant to

CWA Section 307(a)(1). See 40 CFR Part 423, Appendix A. Accordingly, the department proposes numeric criteria that are at least as stringent as recommended in EPA's Section 304(a) list for priority pollutants. The state is not required to adopt EPA's recommended numeric criteria for pollutants that have not been identified as priority pollutants (also referred to as "non-priority pollutants"). The state only adopts EPA's recommended criteria for non-priority pollutants when the department deems such criteria appropriate to protect state-specific uses.

Chloride, Nitrate, Sulfate, Alkalinity Dissolved Oxygen, Temperature, and pH:

These are non-priority pollutants. Chloride, nitrate, sulfate, dissolved oxygen, temperature, and pH have numeric criteria adopted that are appropriate to protect the state's identified beneficial uses (33-16-02.1-02(10)(a-e) and 33-16-02.1-02(10)(a-e)). The state has not adopted numeric criteria for alkalinity as it would not provide any additional protection for the state identified beneficial uses. Note that alkalinity is a water's capacity to resist changes that would make water more acidic; it is not an element or a specific pollutant.

Chloride's criteria, depending on waterbody classification, ranges from 100 to 250 mg L⁻¹ (30-day arithmetic average) and is protective of the beneficial uses of aquatic life, agriculture, and irrigation. Based on public comment the department is adding industrial and municipal water supply.

Nitrate's numeric criteria of 1.0 mg L⁻¹ is protective of the beneficial uses of aquatic life, and municipal and domestic water supply. Sulfate's criteria range is from 250 to 750 mg L⁻¹ (30-day arithmetic average) depending on waterbody classification. The sulfate criteria are protective in the ranges of 250 to 450 mg L⁻¹ for the beneficial uses of municipal and domestic water supply and 750 mg L⁻¹ for aquatic life.

The dissolved oxygen criterion of 5 mg L⁻¹ as a daily minimum with an allowable exceedance of 10 percent over a 3-year period so long as lethal conditions are avoided is for the protection of aquatic life. The temperature and pH criteria are to protect aquatic life. The criteria for temperature is 85 degrees Fahrenheit with a maximum increase over background of 5 degrees and for pH a range of 6.0 to 9.0 depending on waterbody classification with an allowable exceedance of 10 percent over a 3-year period.

Selenium, endrin, and ammonia are priority pollutants: These pollutants are addressed with comment B7.

- b. **Comment B2:** The aquatic life criteria presented in Table 1 and Table 2 of North Dakota's administrative rules were compared to the national US EPA aquatic life criteria and it was determined that variables alkalinity, hydrogen sulfide, demeton, guthion, malathion, methylmercury, methoxychlor, methyl tertiary-butyl ether, and mirex have not been adopted by North Dakota. It is recommended that a rationale for excluding these variables be provided in the amendments to the proposed administrative rule.

Department Response: The Clean Water Act (CWA) requires EPA to develop recommended numeric criteria (CWA Section 304(a)) for priority pollutants to protect the beneficial uses identified in CWA Section 101(a)(2). The specific pollutants mentioned (alkalinity, hydrogen sulfide, demeton, guthion, malathion, methylmercury, methoxychlor, methyl tertiary-butyl ether, and mirex) are not priority pollutants (40 CFR Part 423, Appendix A.) The department is not proposing any numeric criteria for these as they are adequately addressed in the narrative standards in N.D. Admin. Code section 33-16-02.1-08(1)(a).

Developing and providing documents (within the standards) rationalizing the development of water quality criteria or not adopting non-priority criteria is beyond the scope of the current review.

- c. **Comment B3:** Ultimately, it is recommended that references pertaining to where North Dakota's water quality standards have been derived be included in the administrative rule.

Department Response: The formatting of the standards has been revised to better indicate the basis for the standards. As the standards themselves are administrative rules, it would not be appropriate to include a discussion of the basis in the standards. For a detailed explanation of the basis of the standards, refer to the CWA Section 304(a), which requires EPA to develop and publish recommended water quality criteria to protect the CWA Section 101(a)(2) uses and goals. Under CWA Section 303(c)(2)(B), the state is required to adopt numeric criteria for all priority pollutants pursuant to CWA Section 307(a)(1).

- d. **Comment B4:** Manitoba has developed a systematic approach that allows the adoption of water quality criteria from various jurisdictions (e.g., US EPA, CCME and others). Is US EPA the only source that North Dakota will consider for water quality aquatic life criteria?

Department Response: The department proposes criteria based on the science and the law. While EPA is not the only source, the department relies heavily on EPA for criteria development because it has substantially greater resources than the state. While at times, the department has selected more stringent criteria for select pollutants, most often after review, the department adopts EPA's recommendations for both aquatic life and human health for all priority pollutants and select non-priority pollutants.

The department is watchful of pollutants that may need more stringent criteria to protect the beneficial uses of the state. The department looks for these during investigations of environmental incidents, during the permitting process, through recommendations of the State Water Pollution Control Board, and by soliciting review of the current standards from the public, local and state governments, and neighboring states and provinces.

CWA Section 304(a) requires EPA to develop and publish recommended water quality criteria to meet the CWA section 101(a)(2) uses and goals. Under CWA Section 303(c)(2)(B), the state is required to adopt numeric criteria for all priority pollutants pursuant to CWA Section 307(a)(1). As this data becomes available, the department internally reviews it. After internal review, the department usually, without modification, adopts either the newest developed criteria for human health or the more stringent maximum concentration limits.

- e. **Comment B5:** It would be helpful if there were a background document or a section within the administrative rule that discusses and clarifies the rationale for using specific sources of aquatic life criteria and/or modifying criteria for use in North Dakota. It is recommended that North Dakota describe in the text when the aquatic life criteria deviates from the originally intended application (e.g., the case for ammonia). If adopting aquatic life criteria from an alternate source other than the primary source (i.e. US EPA), it is recommended that North Dakota consider the derivation protocol, level of protection, species used, geographic proximity, and whether or not the criteria is a full, interim, provisional, or benchmark value.

Department Response: Based on the following reasoning, the department does not believe that adding background documentation or derivative protocol is in the best interest of protecting the state's waters.

The department adopts the EPA-recommended criteria for all priority pollutants for the protection of aquatic life and recreation. On rare occasions, there has been a delay between the EPA-published recommendation and state adoption (e.g., ammonia which will be further discussed under comment B7). This allows the state an opportunity to study the science; however, to date the state has either adopted the EPA-recommended criteria or a more protective criteria.

The EPA-recommended CWA Section 304(a)(1) criteria provide technical information and ultimately provide a basis for assessing water body health. Since the department usually adopts the recommended criteria for aquatic life, it does not believe that there would be a benefit to reproducing the CWA Section 304(a)(1) published criteria for aquatic life and research references in the standards.

- f. **Comment B6:** Finally, it is recommended that the word 'benchmark' be defined in the administrative rule as it can have a number of meanings depending on the context.

Department Response: As defined in Webster's New World Dictionary, the word benchmark is "a standard by which something may be measured or judged". Because of the clear meaning, the department believes that "bench mark" is appropriate as used in the standards to describe a numerically defined conditional ending or starting point.

- g. **Comment B7:** Manitoba Sustainable Development has reviewed the proposed aquatic life criteria in the administrative rule and have the following comments for specific variables:

Comment B7.1 (Aluminum)

Although a change to the aluminum (Al) water quality criteria was not included in the proposed administrative rule, it is important to note that the US EPA is in the process of updating their national aluminum standard and have been exploring the use of alternative derivation techniques such as the biotic ligand model (BLM). In Manitoba, the Red River often exceeds the US EPA water quality criteria for aluminum of 750 µg/L. Since 2005, 131 out of the 212 water samples collected from the Red River exceeded at a variety of sampling stations between the United States border and Lake Winnipeg. Manitoba recommends that North Dakota consider the new aluminum guideline being developed by the USEPA in future revisions to the administrative rule.

Department Response: Comment noted.

Comment B7.2 (Ammonia)

North Dakota has acknowledged the recently updated ammonia criteria which reflects improved science and incorporate additional toxicity data on sensitive freshwater mussels and snails. However, North Dakota has not fully adopted the recommendation, and the ammonia criteria are still under review. If the ammonia review will not be complete in time for the publication of the administrative rule, then the current ammonia criteria adopted (US EPA 1999) should be presented in Table 1.

Department Response: The ammonia equation in Table 1 is from the EPA 1999 Update of the Ambient Water Quality for Ammonia, September 1999, EPA-822-R-99-14, December 1999, Page 83 and is presented in Table 1.

Comment B7.3 (Ammonia)

It is encouraging that North Dakota follows the most recent state of science regarding the protection of aquatic life from exposure to ammonia. Manitoba Sustainable Development is interested to learn more about the various options North Dakota is exploring to replace the US EPA (2013) recommendation for ammonia. Some of the most sensitive species to ammonia exposure exist in Manitoba, including Fatmucket (*Lampsilis silquoidea*), a unionid clam found widespread throughout Manitoba waters, including the Red River. Manitoba notes that Rainbow Mussels have also been detected in North Dakota waters and is one of the most sensitive species for acute and chronic exposure to ammonia. The Rainbow Mussel was listed as 'Endangered' by SARA (Canadian Species at Risk Act) in 2013 and of 'Special Concern' by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) in 2015.

Department Response: The department is currently studying the most recently recommended ammonia criteria as outlined in the publication EPA 822-R-13-001

Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater, 2013, and its implication to the state and specific waters. The review has identified that implementing the new ammonia criteria poses substantial regulatory compliance challenges.

The regulatory compliance challenges are technical, social and economic. The technical difficulties surround understanding the complex science of ammonia, the probable effectiveness of alternative treatment options and identifying the natural biological communities.

Under the Code of Federal Regulations Title 40, Section 131.11 there are tools to assist the department in developing numeric criteria for CWA Section 304(a) priority pollutants. These take time to develop and research to ensure they will meet the requirements of protecting the beneficial uses identified in the CWA Section 101(a)(2) uses.

Alternatives protecting the CWA Section 101(a)(2) are:

1. Recalculating the statewide ammonia criteria based on CWA Section 304(a) guidance, (40 CFR Part 131.11),
2. Developing site specific criteria based on CWA Section 304(a) guidance, (40 CFR Part 131.11),
3. Developing statewide or site-specific variances following (40 CFR Part 131.14),
4. Improved lagoon option,
5. Research advantages of better temperature and pH datasets for their receiving waters,
6. Research outfall structures and distance options,
7. Explore utilizing mixing zones,
8. Include compliance schedules in permits, and
9. Study impact of short-term intermittent discharges on mussel and sensitive fish species and life stages.

Comment B7.4 (Ammonia)

Based on Table 1 of the proposed administrative rule, North Dakota recommends the EPA (1999) acute and chronic aquatic life criteria for ammonia. The EPA (1999) criteria for chronic exposure to ammonia mentions the importance of life stage; however, North Dakota does not include the importance of life stage in the proposed rule. North Dakota developed a site-specific ammonia standard for the Red River during the fall and winter months; however, it is unclear how this site-specific ammonia chronic criteria was derived. Any modifications from the original criteria recommendation by the US EPA (1999) should be reported in a rationale document.

Department Response: The current site-specific ammonia criteria was developed using the methods outlined in EPA 1999 Update of the Ambient Water Quality for Ammonia, September 1999, EPA-822-R-99-14, December 1999. As the state moves

forward on its Nutrient Reduction Strategy and adoption of new ammonia criteria, the site-specific criteria will be revisited as well.

Comment B7.5 (Endrin)

The national US EPA aquatic life acute criteria for the pollutant, endrin, is 0.086 µg/L. However, North Dakota frequently refers to the value of 0.86 µg/L throughout the proposed administrative rule. Manitoba recommends that North Dakota replace the value of 0.86 µg/L with 0.086 µg/L to be consistent with the national standard. Alternatively, it is recommended that North Dakota provide rationale as to why North Dakota's value is less stringent than the US EPA recommendation.

Department Response: The acute concentration in the discussion is a typographical error in the discussion, as is the missing acute criteria proposed in N.D. Admin. Code 33.1-6.02.1 Table 2. This has been corrected by populating N.D. Admin. Code 33.1-6.02.1 Table 2 with an acute criteria concentration of 0.086 µg L⁻¹ to match the recommended numeric criteria in CWA Section 304(a).

Comment B7.6 (PCB – Arachlor)

This criterion applies to total PCBs (i.e. the sum of all congener or all isomer or homolog or Arochlor analyses). The criteria listed in Table 1 for each specific congener or isomer appears to be incorrect (e.g., each specific congener or isomer of PCB is recommended to be below 0.014 µg/L). However, it should be the sum of all the congeners or isomers that is to be below 0.014 µg/L. Manitoba also recommends North Dakota review the referencing to superscripts for all tables as there appears to be a few issues (e.g., PCB-Arachlor, endosulfan).

Department Response: Noted, and corrected footnote for PCBs.

Comment B7.7 (Methylmercury)

Manitoba notes that methylmercury is missing from North Dakota's list of pollutants and would recommend that it be included in the proposed changes to the administrative rule given the potential impacts on aquatic life and human health. In 1995, the US EPA derived national aquatic life (acute and chronic) criteria for methylmercury.

Department Response: There appears to be some confusion that EPA recommends methylmercury and not mercury in CWA Section 304(a), however the analyte in 40 CFR Part 423, appendix A (CWA Section 304(a) Table) is for mercury (Cas No. 7439976). The CWA Section 304(a) recommends numeric mercury criteria for acute and chronic protection of aquatic life of 1.7 µg L⁻¹ and 0.90 µg L⁻¹ (converted to total recoverable), respectively, and 0.050 µg L⁻¹ and 0.051 µg L⁻¹ for human health based on one and two routes of exposure. N.D. Admin. Code Chapter 33-16-02.1 and 33.1-16.02.1 are proposed at 0.7 µg L⁻¹, 0.012 µg L⁻¹, 0.050 µg L⁻¹, and 0.051 µg L⁻¹, respectively.

Note that the state does have methylmercury (Cas No. 22967926) criteria of 0.3 mg/kg for the consumption of fish as recommended by EPA.

Comment B7.8 (Selenium)

In 2016, the US EPA updated their water quality criteria for selenium. For the chronic criteria, the 30-day average concentration of selenium in water should not exceed 3.1 µg/L in lotic (flowing) waters and 1.5 µg/L in lentic (standing) waters more than once in three years on average. The US EPA (2016) acute water quality criteria for selenium is based on an intermittent exposure equation. The current water quality criteria in the proposed administrative rule is 20 µg/L (acute) and 5 µg/L (chronic). The source of the acute and chronic criteria for selenium should be included in the administrative rule. Although the chronic value reported in proposed changes to North Dakota's administrative rule is consistent with the US EPA (1999) water quality criteria for selenium, it is unclear why 20 µg/L was used as the acute criterion and how this was derived. Manitoba notes that the proposed chronic criteria is less stringent and recommends North Dakota adopt the federal US EPA (2016) aquatic life criteria for both acute and chronic exposure to selenium.

Department Response: The newest EPA recommendation for selenium was published in June of 2016 (EPA 822-F-16-005) after this review process had begun. The department has not had adequate time to study the criteria for this review period. The current selenium criteria are based on EPA's previous recommendations.

Comment B7.9 (Sulphate)

Elevated sulphate concentrations are an issue in the Red River. Between 2012 and 2016, total sulphate concentrations have frequently exceeded the North Dakota site specific standard for the Red River of 250 mg/L at several sampling stations between the US border and Lake Winnipeg. Manitoba is in favour of North Dakota changing the frequency of measurement of total sulphate in the river from 30-day average to 10-day average. It is unclear why 250 mg/L was used as aquatic life criterion and how this was derived.

Department Response: The department recognizes that sulfate does occasionally exceed a concentration of 250 mg L⁻¹ which is a non-priority drinking water standard. It is set at 250 and a 30-day average to protect taste in domestic and municipal drinking water systems.

- h. **Comment B8:** North Dakota recommends the use of total concentrations as opposed to dissolved concentrations for the protection of aquatic life from exposure to all metals. The Canadian Council of Ministers of the Environment is moving towards the use of the dissolved fraction because this more accurately represents the bioavailable form that is most toxic to aquatic life. The national US EPA criteria for metals uses conversion factors to convert total concentrations to dissolved concentrations. However, the use of these conversion factors is based on the toxicity data, not raw surface water data. Research indicates there may be a variety of toxicity modifying factors (e.g., dissolved organic matter, hardness, pH) or environmental conditions

(temperature, pH) that may influence the toxicity of certain metals to aquatic life. For example, nickel toxicity may be affected by dissolved organic carbon (DOC), hardness (and to a lesser extent, pH). However, the current US EPA equation does not take into account pH or DOC effects. Manitoba recommends that North Dakota consider the use of the dissolved metal criteria from the US EPA in future updates to the administrative rule.

Department Response: The department recognizes that biological uptake and accumulation of elemental pollutants is complex. It also recognizes that using just the dissolved fraction ignores a substantial portion of the total amount of pollutant, all of which will eventually become available for biological uptake in a complex aquatic system. For this reason, the department believes that using total recoverable is the most conservative fraction for the protection of the state aquatic resources.

- i. **Comment B9:** It is recommended that North Dakota review the superscripts associated with all tables in the administrative rule as it appears as though some of the superscripts have not properly been referenced. For example, superscript 1 (under Table 2) suggests “For the aquatic life values for metals, the values refer to total recoverable method for ambient metal analyses”. However, this superscript is not represented within Table 2 itself. Many users may misinterpret the metal fraction if only referring to Table 2. It is recommended that North Dakota define the difference between total (dissolved plus suspended) and total recoverable in the administrative rule.

Department Response: The department appreciates this comment. Upon review of the superscripts, a few errors were identified and corrected. Note, that superscript 1 was not one of the errors, as this footnote is in the title to Table 2, not the body of the table, and appears correct.

- j. **Comment B10:** It is recommended that the equation be used in Table 2 rather than a value based on a specific hardness of 100 mg/L (CaCO₃) for all applicable metals. It would be beneficial to have lookup tables in an appendix or an excel spreadsheet calculator on the NDDEQ website for quick and easy calculations.

Department Response: Comment noted.

- k. **Comment B11:** Manitoba Sustainable Development is in agreement that the BLM is a powerful tool for determining water quality criteria for specific trace elements. In recent years, the Canadian Council of Ministers of the Environment, US EPA and European Union (and others) have been investigating the use of BLMs for developing site-specific water quality standards for a variety trace metals (e.g., Cu, Ni, Al, etc.). The BLM approach can deal with the complex behavior in chemical and biological systems and can be extended to include new factors as science evolves (e.g., new ecotoxicity data, mixture effects). In the US, a number of organizations have developed BLMs for a variety of metals. It is recommended that North Dakota explore the use of BLMs in future updates for other elements.

Department Response: Comment noted.

- l. **Comment B12:** Manitoba Sustainable Development agrees with North Dakota's comments regarding concerns associated with nutrients leading to eutrophication, namely nitrogen and phosphorus. While some scientists argue a single nutrient management approach (i.e. phosphorus only control) will reverse eutrophication, there is recent evidence that suggests a dual nutrient management approach (i.e. nitrogen and phosphorus control) is warranted. The US EPA recently released a policy document highlighting the importance of controlling both nitrogen and phosphorus to limit excessive plant growth. Since 2011, Manitoba has followed the dual nutrient management approach to limit nitrogen and phosphorus export to surface waters. Manitoba Sustainable Development strongly encourages North Dakota to develop site-specific nitrogen and phosphorus criteria in waterbodies receiving municipal wastewater as part of their NDPES process.

Department Response: The department agrees with Manitoba Sustainable Development that controls for both phosphorus and nitrogen are needed to address nutrient pollution. North Dakota is beginning to implement its Nutrient Reduction Strategy which will eventually address all species of phosphorus and nitrogen. The strategy is driven by a large group of stakeholders of which Manitoba Conservation and Water Stewardship, Environment Canada, and the Red River Basin Board are participating members. With direction and input from the stakeholders, the strategy is laying out the framework for how the department will develop numeric thresholds and targets.

- m. **Comment B13:** Table 1 of the administrative rule presents aquatic life criteria for nitrate concentration of 1 mg/L (up to 10% of samples may exceed), although it is not clear where this criterion is from or how it was derived. The US EPA recommends ecoregional criteria as part of their national nutrient strategy. Within each ecoregion, total nitrogen and total phosphorus concentrations are recommended for lakes and reservoirs, rivers and streams, and wetlands based on a 25th percentile. North Dakota can be broken down into three ecoregions: Ecoregion IV (Great Plains Grass and Shrublands, South Central Cultivated Great Plains), V (South Central Cultivated Great Plains), and VI (Corn Belt and Northern Great Plains). The US EPA has not derived national aquatic life criteria for nitrate; rather, the ecoregional criteria provides water quality information for the protection of ecological, human health and the protection of designated uses. The three ecoregions that exist in North Dakota have total nitrogen values that are more stringent than the recommended aquatic life criteria for nitrate. We recommend that North Dakota provide rationale as to why North Dakota does not include the ecoregional values as an alternative to the 1 mg/L nitrate criterion.

Department Response: The state and department are beginning to implement its Nutrient Reduction Strategy. One of the key portions of the strategy is the development of nutrient criteria. The strategy is driven by a large group of

stakeholders of which Manitoba Conservation and Water Stewardship, Environment Canada, and the Red River Basin Board are participating members.

With direction and input from the stakeholders, the Nutrient Reduction Strategy is being strengthened by laying out the framework for how the department will develop numeric thresholds and targets. The final product will likely be multi-regional within the state and address both phosphorus and nitrogen.

Lastly, for clarification, ecoregions in North Dakota from east to west the Northern Glaciated Plains, Northwestern Glaciated Plains, and Northwestern Great Plains.

- n. **Comment B14:** It is recommended that North Dakota provide clarity regarding what nitrate as N₂ refers to in Table 1 of the administrative rule. It is believed that this sentence should read “nitrate as nitrogen” as opposed to “nitrate as N₂” because N₂ refers to nitrogen gas. Some clarification is required on why the protection of aquatic life and drinking water criteria for nitrate are the same. It would be helpful to confirm that the nitrate value is for the protection against excessive plant growth, and not based on aquatic life criteria as suggested in Table 1.

Department Response: Differing agencies and laboratories use various names for similar elements and chemical compounds. The N.D. Admin. Code Chapter 33-16-02.1 and 33.1-16-02.1 include the Chemical Abstract Service Number (CAS No.) to prevent any misinterpretation of the element or chemical compound in the tables. In N.D. Admin. Code Chapter 33-16-02.1 and 33.1-16-02.1, Table 1, nitrate as N² has the CAS No. 14797558 identifying it as nitrate and the superscript 2 references the foot note which reads “The standard for nitrates (N) is intended as the Benchmark Concentration when stream or lake-specific data is insufficient to determine the concentration that will cause excessive plant growth (eutrophication). However, in no case shall the concentration for nitrate plus nitrite exceed 10 mg L⁻¹ for any water used as a municipal or domestic drinking water supply.”

To clarify which beneficial use is being protected by the numeric criteria, the proposed amendments to N.D. Admin. Code Chapter 33-16-02.1 and 33.1-16-02.1, Table 1, include the addition of letters following the element or chemical compound (a, b, or c) that will correspond to the beneficial use being protected. Example a = aquatic life, b = municipal and domestic drinking water, and c = agricultural. The department hopes this is helpful in recognizing the correct element or compound and what beneficial use the numeric criteria is protecting.

- o. **Comment B15:** The only substance or characteristic in Table 1 associated with the protection of recreational uses of water is *E. coli*. All other water quality criteria for protection of recreational uses are narrative (e.g., colour, odor, taste, oil, grease, etc.) and are not included in Table 1. The US EPA have developed materials to assist water managers with monitoring and responding to cyanobacteria and algal toxins in recreational waters. In 2016, the US EPA released draft recreational water quality criteria for microcystin and cylindrospermopsin. The public consultation process for

these were extended in February 2017. It is recommended that North Dakota investigate the potential of adopting recreational water quality standards for cyanobacterial toxins (e.g., microcystin, cylindrospermopsin) in addition to other chemical (e.g., pH) and biological (e.g., fecal coliforms) factors.

Department Response: The state is investigating all these issues. Based on this research, the state recognizes cyanobacteria blooms not as a pollutant but as a symptom or biological response to nutrients. The state believes that the solution is to address the problem (not the response) by following the Nutrient Reduction Strategy. The first step is the adoption of the Narrative Nutrient Standards being proposed for this review period.

- p. **Comment B16:** It is recommended that North Dakota provide a narrative water quality standard for invasive species with specific reference to the applicable state and federal laws that pertain to aquatic invasive species including possession, conveyance, decontamination, reporting and control measures.

Department Response: Aquatic Nuisance Species (ANS) are addressed and regulated by the North Dakota Game and Fish Department under N.D. Admin. Code, Chapter 30-03-06.

- q. **Comment B17:** References should be added to the administrative rule describing the original source of the water quality criteria. This is very critical because most (if not all) of the water quality criteria have been derived by sources outside of North Dakota but are used to represent North Dakota conditions. It is common that jurisdictions include the reference so that the reader can learn more about how the criteria was developed and makes it easier for updating the administrative rule in the future. At the very minimum, a link to the origin of the criteria should be provided.

Department Response: See response to B4.

- r. **Comment B18:** It is recommended that the following units be defined in the proposed administrative rule: mEq/l and pCi/l. In the case for mEq/l, it is recommended North Dakota describe how this is calculated, as not all users will have the background for these conversions.

Department Response: The referenced units mEq/l (milliequivalents per liter) and pCi/l [picocurie per liter] are standards units of measure and are appropriate here.

- s. **Comment B19:** Manitoba recommends against the aggregation of all agricultural water quality standards into a single use (i.e. irrigation, industrial). For example, there should be some distinction between water quality standards for irrigation versus livestock water. Often, irrigation standards depend on the soil type or crop type. For example, the agricultural value for boron in the administrative rule is 0.75 mg/L. However, criteria for boron should really depend on the crop and soil and typically, livestock can handle more boron than most plants. A similar situation exists for other

major ions (e.g., sodium, chloride). Agricultural water criteria exist for other chemical (e.g., trace elements, pesticides) and biological (fecal coliforms) variables that are not included in North Dakota's administrative rule. It is recommended that North Dakota consider separating agricultural criteria into irrigation, livestock waters, and greenhouse irrigation in future updates to the administrative rule.

Department Response: North Dakota identifies the beneficial uses appropriate for its people. North Dakota's uses are:

- a. Municipal and domestic water. Waters suitable for use as a source of water supply for drinking and culinary purposes after treatment to a level approved by the department.
- b. Fish and aquatic biota. Waters suitable for the propagation and support of fish and other aquatic biota and waters that will not adversely affect wildlife in the area. Low flows or natural physical and chemical conditions in some waters may limit their value for fish propagation or aquatic biota.
- c. Recreation. Primary recreational waters are suitable for recreation where direct body contact is involved, such as bathing and swimming, and where secondary recreational activities such as boating, fishing, and wading are involved. Natural high turbidities in some waters and physical characteristics of banks and streambeds of many streams are factors that limit their value for bathing.
- d. Agricultural uses. Waters suitable for irrigation, stock watering, and other agricultural uses, but not suitable for use as a source of domestic supply for the farm unless satisfactory treatment is provided.
- e. Industrial water. Waters suitable for industrial purposes, including food processing, after treatment. Treatment may include that necessary for prevention of boiler scale and corrosion.

These uses are appropriate and detailed enough to be protected by the water quality criteria.

III. Sandra D. Spence, Manager
United States Environmental Protection Agency, Region 8
Water Quality Unit

- a. **Comment C1:** The triennial review requirement in the EPA WQS regulation (40 CFR 131.20(a)) was updated to clarify the required scope for each review. Specifically, the EPA clarified that states and authorized tribes must from time to time, but at least once every three years, hold public hearings that allow for public input on all applicable WQS adopted into state or tribal law pursuant to 40 CFR 1.10 - §13 1.15, as well as any federally promulgated WQS. The final rule also clarified a public hearing is required when (1) reviewing WQS per *131.20(a) and (b); (2) when revising WQS as a result of reviewing WQS per 5131.20(a) and (b); and (3) whenever revising WQS, regardless of whether the revision is a result of triennial review per §131.20(a) and (b). The State's January 10, 2018 public notice solicited

comments on proposed amendments to the Standards of Quality for Waters of the State, N.D. Admin. Code ch. 33-16-02.1. ND held its public hearing on March 12, 2018. The EPA recommends NDDH review state law for any conflicts with the requirements of 40 CFR §13 1.20 and 40 CFR Part 25 and ensure the public participation requirements for the triennial review is consistent with these requirements.

Department Response: The state's last review of the standards of quality for water of the state, N.D. Admin. Code Chapter 33-16-02.1 began in 2013, and the changes were adopted in the spring of 2014. The revised rules received EPA approval without condition on August 14, 2014.

The current review of the standards began with a meeting of the North Dakota Pollution Control Board on October 27, 2015. The North Dakota Department of Health continued the review by providing an opportunity in the fall of 2016 for citizens and stakeholders to present recommendations, voice concerns, and provide input for considerations, amendments, and additions to the entire standard. By October 31, 2016, the solicitation of views was published in all North Dakota daily newspapers, posted on the department's website, and sent by mail and email to individuals and agencies that had expressed an interest in the past. Copies of the standards could be obtained by writing or calling the department. Written or oral comments on the standards received by December 20, 2016 were fully considered. Founded on the nearly two years of review, the department proposed amendments to the water quality standards.

A public hearing on the standards was held on March 12, 2018, and a public notice announcing the hearing and solicitation of comments was published in all state newspapers with no publication appearing later than January 22, 2018. The hearing and solicitation for comments was also posted on the department's website and sent by mail and email to individuals and agencies that had expressed an interest in the past. Copies of the standards could be obtained by writing or calling the department. The public hearing was held on March 12, 2018, 50 days after the last publication date at the department's Environmental Health Section offices. The public comment period closed 11 days later on March 23, 2018. Written or oral comments on the standards received by midnight March 23, 2018 were fully considered, and responses were provided. The department believes it has met all state and federal requirements to ensure public participation in the review of the standards.

- b. **Comment C2:** One of the updates to the EPA's WQS regulation requires states and authorized tribes to provide an explanation if not adopting new or revised criteria for parameters for which the EPA has published new or updated Clean Water Act (CWA) section 304(a) criteria recommendations (40 CFR 131.20(a)). This change was made to foster meaningful and transparent involvement of the public and intergovernmental coordination with local, state, federal, and tribal entities in light of recent science provided by EPA through its criteria recommendations. The EPA will not approve or disapprove this explanation. For North Dakota's current triennial review, the state will

need to provide explanations where new or revised criteria are not adopted for parameters where EPA has published new or updated CWA section 304(a) criteria recommendations since May 30, 2000, regardless of whether the criteria are more stringent or less stringent than the state's applicable criteria. The EPA provided a list of those parameters that have been published between May 30, 2000 and August 21, 2015. Since the publication of this list, the EPA also published updated CWA section 304(a) aquatic life criteria recommendations for cadmium.

Department Response: The department has reviewed CWA Section 304(a) recommended criteria and find Table 2 criteria are consistent with federal recommendations.

- c. **Comment C3:** The EPA notes that for several of the parameters for which EPA has published new/updated section 304(a) human health criteria recommendations, North Dakota has adopted the more stringent Maximum Contaminant Level (MCL) established by the EPA under the Safe Drinking Water Act. The EPA supports retaining MCLs where they are more stringent than the Section 304(a) criteria. For a pollutant for which the EPA has not published a recommended section 304(a) criterion for "water and organisms" and for which the EPA has promulgated a Maximum Contaminant Level Goal (MCLG), the EPA generally recommend the MCLG for noncarcinogenic pollutants, or a criterion derived by recalculating the MCLG at an acceptable cancer risk level. The EPA does not recommend that the MCL be used where consideration of available treatment technology, costs, or availability of analytical methodologies has resulted in a MCL that is less protective than a MCLG. The EPA recommends North Dakota review the criteria in 33-16-02.1, Table 2, that are based on a MCL to ensure consistency with the recommendations above.

Department Response: The department has reviewed CWA Section 304(a) human health pollutants and finds the criteria are consistent with EPA's recommendations.

- d. **Comment C4:** The EPA's WQS regulation requires that if states intend to authorize the use of compliance schedules for water quality-based effluent limits in NPDES permits, the state must adopt a permit compliance schedule authorizing provision and submit it to the EPA for review and action under Clean Water Act §303.40 CFR §131.5(a)(5), 131.15; 80Fed. Reg. 51020, 51041-51042 (August 21, 2015). North Dakota proposed to adopt a compliance schedule authorizing provision at 33-16-02.1-05. EPA recommends revising the first sentence to read "A North Dakota pollutant discharge elimination system (NPDES) permit may contain a schedule of compliance leading to the return of a permittee into compliance with water quality-based effluent limits consistent with federal and state rules" to clarify that compliance schedules may only be used for water quality-based effluent limitations. Compliance schedules cannot be used for technology-based effluent limitations. 40 CFR 122.47.

Department Response: The department amended N.D. Admin. Code Sections 33-16-02.1-05 and 33.1-16-02.1-05 second paragraph by adding water quality based for clarification. The sentence now reads:

A North Dakota pollutant discharge elimination system (NDPDES) permit may contain a schedule to return a permittee to compliance with water quality based effluent limits consistent with federal and state regulation(s). Compliance schedules in NDPDES permits are subject to the requirements of ND Administrative Code 33-16-01-15 and cannot be issued for new discharges or sources.

- e. **Comments C5:** The new EPA WQS rules added 40 CFR §131.14 that explicitly authorizes the use of WQS variances when the applicable designated uses are not attainable in the near-term but may be attainable in the future. The rule also includes additional requirements such as information that a state or authorized tribe must adopt in any WQS variance, including the highest attainable condition. States and authorized tribes must submit supporting documentation to the EPA that demonstrates why the WQS variance is needed and justifies the term and interim requirements. WQS variances longer than five years must reevaluate at least every five years after EPA approval with an opportunity for public input. Further information regarding the new requirements for variances please see 40 CFR §131.14 and 80 Fed. Reg. at 51035-51041.

North Dakota articulates its WQS variance policy at chapter 33-16-02.1-05. This provision does not include all of the federal requirements of 40 CFR Section 131.14. The EPA recommends that North Dakota revise chapter 33-16-02.1-05 to state “A variance will be granted only after fulfillment of the approved requirements at 40 CFR §131.14, including public participation requirements and EPA approval.”

Department Response: The department amended N.D. Admin. Code Section 33-16-02-05, first paragraph by adding the requirement of meeting all federal requirements of 40 CFR Section 131.14 to N.D. Admin. Code Sections 33-16-02.1-05 and 33-16-02.1-05 so that the paragraph now reads:

If, upon written application by the responsible discharger, the department finds that by reason of substantial and widespread economic and social impacts, the strict enforcement of state water quality criteria is not feasible, the department can permit a variance to the water quality standard for the affected segment. The department can set conditions and time limitations with the intent that progress toward improvements in water quality will be made. This can include interim criteria which must be reviewed at least once every three years. A variance will be granted only after fulfillment of the approved requirements at 40 CFR §131.14, including public participation requirements and environmental protection agency approval. A variance will not preclude an existing use.

- f. **Comment C6:** As indicated in North Dakota's Notice of Intent to Amend and Adopt Administrative Rules Relating to Standards of Quality for Waters of the State, the proposed rulemaking also implements Senate Bill Number 2327 concerning the creation of the North Dakota Department of Environmental Quality (NDDEQ). The

Environmental Health Section Chief, who is authorized under S.L. 2017, ch. 199, 51 (S.B. 2327) to adopt rules for the NDDEQ, is proposing to adopt the NDDH's Standards of Quality for Waters of the State, N.D. Admin. Code ch. 33-16-02.1, including the proposed amendments, as the NDDEQ's Standards of Quality for Waters of the State, N.D. Admin. Code ch. 33.1-16-02.1. The proposed NDDEQ rules contain minor edits to reflect the creation of the new agency and transfer water quality standards authority to NDDEQ. If adopted, the proposed NDDEQ rules will be effective upon establishment of the NDDEQ, as specified in S.L. 2017, ch. 199, {1 (S.B. 2327). Given the unique circumstances in this instance, it would be appropriate for North Dakota to add a delayed effective date in NDDEQ's Standards of Quality for Waters of the State to ensure a streamlined transfer of the WQS authorities from the Department of Health to the NDDEQ upon creation.

Department Response: The rulemaking transferring the rules to the ND Department of Environmental Quality (NDDEQ) includes a statement that ND Admin. Code, Chapter 33.1-16-02.1 is subject to the contingency in SL 2017, Ch 199, section 75, which states that the statutory changes authorizing these rules are “effective upon the receipt by the legislative council of the certification by the chief of the environmental health section of the state department of health attesting that all necessary federal approvals have been obtained and all necessary federal and other agreements have been amended to ensure the state will continue to meet the primacy requirements it currently satisfies after the transfer of authority, powers, and duties from the state department of health to the department of environmental quality provided under this Act.” This provides a delayed effective date, although not a specific date.

IV. David Keagle

Braaten Law Firm

On Behalf of the Concerned Citizens of Buffalo, North Dakota

Antoinette Babcock, Deb Coon, Randy Coon, Alan Dostert, Carolyn Dostert, Lee Fraase, Arnetta Frueh, Tim Frueh, Bill Marcks, Jerry Marcks, Liane Stout, Roy Thompson, Sheila Thompson, Judith VonBank, and Robert VonBank, which were prepared in coordination with the Socially Responsible Agriculture Project.

- a. **Comment D1:** The proposed definition for eutrophication is incomplete and appears to define the phenomena as a positive effect rather than acknowledge the potential negative effects on waters of the state. Proposed WQS language as proposed in the public notice.

Department Response: The department reviewed the definition being proposed for eutrophication in N.D. Admin. Code, Sections 33-16-02-4(12) and 33.1-16-02-4(12) and also find it accurate and able to achieve the goal of supporting the proposed nutrient narrative criteria in Sections 33-16-02.1-08(1) and 33.1-16-02.1-08(1) which clearly recognizes the potential negative effects of eutrophication: (6) Free from nutrients attributed to municipal, industrial, or other discharges or agricultural

practices, in concentrations or loadings which will cause accelerated eutrophication resulting in the objectionable growth of aquatic vegetation or algae or other impairments to the extent that it threatens public health or welfare or impairs present or future beneficial uses.

It should be noted that eutrophication is a natural process and the negative or positive responses to the process are symptoms.

- b. **Comment D2:** The biggest change to the numerical standards as proposed is the adoption of the 2015 EPA Human Health Criteria values for priority pollutants in Table 2 of the NDWQS. The proposed changes include 28 priority pollutants with criteria that are increased above the current ND values. An increase in the criteria value implies that a greater pollutant concentration occurring in waters of the state would be allowed. Some of these increases are substantial. The only explanation or defense of said changes provided in the public notice is the following:
"Updating the Human Health Criteria in Table 2 to match the 2015 EPA ambient water quality criteria for the protection of human health for all priority pollutants and the five select non-priority pollutants, barium chlorophenoxy herbicide (2-4D), methoxychlor, nitrates, and pH."

Of the 28 priority pollutants that are proposed to have higher criteria values, the following eighteen (18) are significantly increased (more than 2 times existing concentration and up to 50 times higher) without specific justification presented in the public notice.

Did NDDoH adopt all USEPA changes without question or did NDDoH evaluate every increase to determine if the rationale for increases up to 50 times existing value is appropriately justified using scientific analysis?

Department Response: The department proposes human health criteria based on the science and the law. Under CWA Section 303(c)(2)(B), the state is required to adopt numeric criteria for all priority pollutants pursuant to CWA Section 307(a)(1). In 2015, EPA updated its CWA Section 304(a) criteria for human health, and after internal review, the department proposes adopting all newly developed criteria to reflect the most current science. Adopting human health criteria is also supported by state law, N.D. Century Code ch 61-28 Control, Prevention, and Abatement of Pollution of Surface Waters and N.D. Century Code Section 61-28-05, Rules a Standards.

The EPA updated its national recommended Human Health Criteria (HHC) for 94 chemical pollutants in 2015 to match the latest scientific information and federal policy. The department proposes to change HHC for 1,1,1-Trichloroethane, 1,1-Dichloroethylene to reflect the newest information in 40 CFR, Part 131.45 (b) Table 1.

The data to support the newly proposed criteria may be found in the National Recommended Water Quality Criteria – Human Health Criteria Table, 2015 update.

In the 2015 updated table, EPA has revised the HHC for 1,1,1-Trichloroethane and 1,1-Dichloroethylene to reflect the latest scientific information, including updated exposure factors (e.g., body weight, drinking water intake rate, and fish consumption rate); bioaccumulation factors; and human health toxicity values (reference dose multiplied by relative source contribution or 10^{-6} divided by cancer slope factor). The criteria continue to be based on EPA's Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health, which is referred to as the "2000 Methodology" in this document (USEPA 2000a). EPA accepted written scientific views from the public on the draft updated HHC for this chemical (and 93 others) from May through August 2014.

The department appreciates that the EPA-recommended human health criteria are designed around minimizing the risk of adverse cancer and non-cancer effects occurring from lifetime exposures to pollutants through both the ingestion of drinking water and the consumption of fish and shellfish. The criteria are based on two types of exposure and two biological endpoints (carcinogenic and systematic). The interpretation of risk is designed to be conservative, and when possible, EPA takes an integrated approach and considers both carcinogenic and non-carcinogenic toxicity endpoints, always recommending the lower value.

The data gathered for developing the human health criteria are private and public and is peer reviewed. The department relies on this data provided by EPA and required under the CWA 304(a) because it has substantially greater resources than the department. While the department has selected more stringent criteria for select pollutants (e.g., pH, mercury) usually after review, the department adopts EPA's recommendations.

The criteria in question are developed to meet the requirements of the CWA Section 304(a) and to support the CWA Section 101(a)(2) uses and goals. Under CWA Section 303(c)(2)(B), the state is required to adopt numeric criteria for all priority pollutants pursuant to CWA Section 307(a)(1). In 2015, EPA updated its 304(a) criteria for human health, and after internal review, the department proposes adopting all newly developed criteria to reflect the most current science. Adopting human health criteria is also supported by state law, N.D. Century Code 61-28 Control, Prevention, and Abatement of Pollution of Surface Waters and N.D. Century Code 61-28-05 Rules and Standards.

- c. **Comment D3:** No new aquatic life criteria were proposed. There are data for some of the priority pollutants with respect to aquatic toxicity. For example, 1, 2-Dichlorobenzene has been tested on a wide range of aquatic organisms under acute exposure, although chronic data are scarce. Results for fish ranged from 96-hr $LC50=1.58$ mg/L for rainbow trout to 57 mg/L for fathead minnow. Both acute and chronic toxicity to aquatic invertebrates were obtained with two results showing high

acute toxicity, namely EC50's of 0.78 mg/L and 0.66 mg/L to Daphnia and Ceriodaphnia respectively. 1,4-Dichlorobenzene has an Aquatic Toxicity ranking of Category 1. Why didn't NDDoH proposed aquatic chronic and acute criteria?

Department Response: There are no acute or chronic aquatic life criteria developed for 1, 2-Dichlorobenzene or 1, 4-Dichlorobenzene. Neither are considered priority or non-priority pollutants for the protection of aquatic life as listed in the National Recommended Water Quality Criteria Aquatic Life table (CWA Section 304(a). However, 1, 2-Dichlorobenzene and 1, 4-Dichlorobenzene are considered priority pollutants for the protection of human health. The department has numeric criteria based on two routes of exposure (ingestion of flesh and drinking water) and one route (ingestion of flesh only). Both pollutants have new human health criteria being proposed that reflect the most current science.

1, 2-Dichlorobenzene: 420 $\mu\text{g L}^{-1}$ to 1000 $\mu\text{g L}^{-1}$ for two routes of exposure, and 1,300 $\mu\text{g L}^{-1}$ to 3000 $\mu\text{g L}^{-1}$ for one route of exposure

1, 4-Dichlorobenzene: 63 $\mu\text{g L}^{-1}$ to 300 $\mu\text{g L}^{-1}$ for two routes of exposure and 190 $\mu\text{g L}^{-1}$ to 900 $\mu\text{g L}^{-1}$ for one route of exposure

- d. **Comment D4:** The three metals in WQS Table 2 that meet USEPA Human Health Criteria are Antimony, Thallium and Zinc. The remaining metals differ from USEPA Human Health and also from the Safe Drinking Water Act maximum contaminant levels (MCL). Why are these criteria for metals different than those proposed by EPA?

Department Response: The proposed aquatic life and human health trace element criteria in N.D. Admin. Code, Section 33-16-02.1-09, Table 2 and 33.1-16-02.1-09 Table 2, with the exception of the chronic criteria for mercury, are equal to or more stringent than the criteria recommended by EPA. The proposed chronic criteria for mercury is 0.012 $\mu\text{g L}^{-1}$, which is substantially lower than EPA's recommended criteria of 0.907 $\mu\text{g L}^{-1}$ (total recoverable) or 0.77 $\mu\text{g L}^{-1}$ (dissolved).

For the human health criteria, select trace elements are assigned the EPA recommended numeric criteria for human health (antimony, chromium [III], chromium [VI], copper, fluoride, mercury, nickel, thallium, and zinc) while others are assigned the more stringent safe Drinking Water Act maximum concentration levels (arsenic, beryllium, lead, selenium, and uranium).

Based on the comment, there might have been some confusion in how to interpret the EPA-recommended criteria. First, the numeric criteria listed on the EPA website are often the dissolved percentage, while the departments are usually listed as total recoverable. In addition, many of the EPA concentrations are reported in mg L^{-1} while most (not all) of the states are reported in $\mu\text{g L}^{-1}$. By using an EPA-approved conversion factor to convert criteria from dissolved to total recoverable and the correct units, the criteria being proposed are equal to or more stringent than the EPA-recommended aquatic life and human health numeric criteria.

- e. **Comment D5 (Summorized):** The proposed rule-making suggests that there is no consensus on how to develop narrative criteria for nutrients in North Dakota even though the topic has been put before a specific stakeholder task force since 2012.

Comment follows with a summary of the 2014 minutes of the Nutrient Strategy work group.

The result of the stakeholder process was a draft version of the North Dakota Nutrient Reduction Strategy (Plan) dated July 2017 which contains the following description of nutrient issues in North Dakota with respect to surface water quality:

Comment Summarized.

From what we can gather reading the draft Plan, it appears that the four-year stakeholder process ended up recommending that the state continue to follow the 2007 nutrient reduction strategy:

Comment Summarized.

The draft Plan agrees that there are impaired waters in North Dakota that are impaired as a result of nutrient management — presumably the management that followed the 2007 nutrient reduction strategy. Yet the draft Plan proposes not to change the 2007 strategy but to keep on implementing it.

Does NDDoH presume that there will be better outcomes different than those from the last ten years? On pdf page 40, the proposed standards do include the proposed phrase from the draft Plan as follows:

Free from nutrients attributed to municipal, industrial, or other discharges or agricultural practices, in concentrations or loadings which will cause accelerated eutrophication resulting in the objectionable growth of aquatic vegetation or algae or other impairments to the extent that it threatens public health or welfare or impairs present or future beneficial uses.

The draft Plan has this to say about translating the narrative standard into a numerical standard:

It is likely that the process of translating narrative criteria to numeric thresholds and targets will occur regionally across the State and with a variety of waterbody types or classes. It is also likely that the iterative process of refining thresholds and targets could take many years to complete.

In other words, it took five years (2012 to 2017) to produce a draft Plan that claims it will take many more years to develop numerical criteria for nutrients. Does the state

have an anticipated timeline and progress checklist for the development of numerical standards for nutrients?

Department Response: The process for developing narrative and numeric nutrient criteria is defined in the State of North Dakota Nutrient Criteria and Development Plan completed and published in 2007. The 2007 development plan lays out the steps for developing nutrient criteria. The 2007 development plan is a single component of the draft North Dakota Nutrient Reduction Strategy (March 2018) and not the strategy itself.

The department realizes that implementation of the Nutrient Reduction Strategy is primarily voluntary and will require sustained public interest and support to be successful. To ensure public support, the department initiated a consensus-based stakeholder process to develop the strategy and its core components. The process for developing the strategy was initiated by the formation of a planning team in November 2012. The department invited individuals representing a variety of public and private sectors to serve as advisors on a 35-member planning team.

The purpose of the planning team was to assist the department in identifying the core components of the Nutrient Reduction Strategy and process for implementation. Key to developing the strategy was the establishment of five workgroups: (1) prioritization and targeting, (2) nutrient criteria development, (3) nutrient reduction strategies for point sources, (4) nutrient reduction strategies for nonpoint sources, and (5) accounting and verification measures and reporting.

Following two preparatory planning team meetings (November 20, 2012 and April 11, 2013) and recognizing that the successful implementation of the strategy will require broad public understanding and support, the department convened a stakeholder meeting on December 19, 2013 comprised of more than 100 individual stakeholders.

With direction and input from the stakeholders, the Nutrient Reduction Strategy was strengthened by laying out the framework for how the department will use the narrative criteria to develop numeric thresholds and targets. These numeric thresholds and targets will then be used by the department to evaluate nutrient impairments, to develop total maximum daily loads, and to assess the reasonable potential for point source dischargers to impact receiving waters with nutrients.

Eventually, as these thresholds and targets are validated through monitoring, they will be adopted as numeric criteria in the state standards. This process will take time, money, and manpower to implement. Having narrative nutrient criteria in place through this rulemaking is an important first step in addressing nutrient runoff to the state's lakes, rivers, and streams. Nutrient pollution has been a long-standing issue in the state of North Dakota, and any solution will take a concerted effort over many years.